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Friends as a Bridge to Parental Influence: Implications for Adolescent Alcohol Use

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Abstract

The current study investigates the possibility that friendship networks connect adolescents to influence from a broader group of adults beyond their own families. In doing so, we combine two rich traditions of research on adult influence on children and adolescents. Family research has suggested a number of ways in which effective parenting can reduce deviant behavior among adolescents. In addition, research on neighborhoods has advanced the idea that adults outside of the immediate family can exert social control that may reduce deviance. We employ longitudinal social network analysis to examine data drawn from the PROSPER Peers Project, a longitudinal study of adolescents following over 12,000 students in 27 non-metropolitan communities as they moved from 6th through 9th grade. We find evidence that the behavior of friends' parents is linked, both directly and indirectly, to adolescent alcohol use. Findings suggest that much of the influence from friends' parents is mediated through peer behavior, but that parental knowledge reported by friends continues to be associated with alcohol use even when controlling for competing mechanisms. Furthermore, adolescents tend to choose friends who report similar levels of parenting as themselves. Our results provide support for the position that friendships in adolescence connect youth to a broader network of adults and illustrate how adults outside of the family contribute to the social control of adolescents.

Introduction

Adults in all human societies face the task of supervising and socializing the young to follow norms for acceptable behavior. Accordingly, the influence of adults is a central theme in the study of adolescent deviant behaviors such as delinquency and drug use. Most of this work focuses on parents (Hoeve et al. 2009; Loeber and Stouthamer-Loeber 1986), the adults with primary responsibility for these tasks and with whom children initially spend the most time. Despite the predominance of the nuclear family in Western industrial societies such as the United States, however, families do not live in isolation. In this vein, theories of community influence emphasize social processes by which a larger body of adults exerts social control over young people (Bursik and Grasmick 1993; Sampson and Groves 1989). Work in this tradition focuses on the impact of norms and cohesion characterizing entire neighborhoods, and we seek to complement it by exploring an especially likely avenue by which a more specific set of adults may come to influence other people's children: the parents of adolescents' friends. Accordingly, we expand upon a line of inquiry opened by Cleveland

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and colleagues (2012) by examining adolescent friendship networks as a bridge to influence from friends' parents.

Social networks and community influence

During adolescence, children increase the amount of time they spend with peers and away from their parents (Felson and Gottfredson 1984; Larson and Richards 1991; Larson et al. 1996; Warr 1993a). Because unsupervised time with peers is a consistent predictor of adolescent deviance (Agnew and Peterson 1989; Mahoney and Stattin 2000; Osgood et al. 1996; Wallace and Bachman 1991), this shift increases both the opportunity and need for adults other than parents to join in the supervision and socialization of adolescents. The idea that adults outside of the family may play an important role in controlling adolescent deviance is not new. Shaw and McKay's (1942) classic work on social disorganization, for example, posited that community-level social control of teenage peer groups is a primary mechanism through which delinquent behavior can be limited. Accordingly, social disorganization theory originally focused on variables—such as residential mobility and ethnic heterogeneity—that would interfere with the ability of adults in the community to work together for such purposes. A more recent systemic version of the theory added an emphasis on residents' social ties as a basis for informal social control, which in turn would reduce problematic factors such as the prevalence of unsupervised groups of adolescents (Bursik and Grasmick 1993; Sampson and Groves 1989). According to Greenberg and colleagues (1982), informal social control may operate at the community level through several types of activities by residents. *Informal surveillance*, for example, involves active observation of the neighborhood, *movement-governing rules* specify what areas of the neighborhood may be unsafe, and *direct intervention* involves confronting people engaged in suspicious or unacceptable behavior. Thus, all adults in a community have numerous opportunities to contribute to a community's informal social control, whether by supervising neighborhood children, restricting what areas of the neighborhood they permit children to visit, or reprimanding neighborhood children for inappropriate behavior.

Over the last twenty-five years, studies have found considerable support for the idea that effective social organization among adults in a community coincides with lower rates of deviant behavior by adolescents (Elliott et al. 1996; Leventhal and Brooks-Gunn 2000; Sampson 1997; Sampson and Groves 1989). We seek to advance this tradition of research by pursuing the idea, proposed by Cleveland and colleagues (2012), that friends' parents are a set of adults who are especially likely to influence other children and adolescents in a community. Prior research has focused either on adolescents' own parents or on adults in the community in general. We argue that parents of friends merit special attention because adolescents' friendships expose them to greater influence from this subset of the community's adults.

The approach we follow expands on a stream of this tradition that concerns friends' parents, namely research about intergenerational closure. According to Coleman (1988:S107), intergenerational closure occurs when parents become friends with the parents of their children's friends: "The consequence of this closure is … a set of effective sanctions that can monitor and guide behavior." In other words, connections to friends' parents enhance

the effectiveness of the parenting of one's own children. Intergenerational closure allows parents to exchange information and expectations with each other and more easily reinforce shared norms through the collective parenting of children. Consistent with systemic social disorganization theory, the focus of intergenerational closure is the social network of adults —in this case, whether parents know the parents of their children's friends. The key function of this closure is that knowing these other parents serves as a form of social capital that will assist in parenting one's own children. In this context, then, social capital is a resource for parents to draw on that aids them in the control and socialization of their children.

Intergenerational closure may be an important way in which adolescents' friendships bring adults outside the family to bear on adolescents' behavior. In our view, however, this concept's focus on parents' social capital for socialization and social control of their own children is unnecessarily restrictive because it requires that parents know one another and that influence from outside the family flows through an adolescents' own parents. We focus on an additional possibility proposed by Cleveland and colleagues (2012): friends' parents may influence deviant behavior independently from the influence of adolescents' own parents. Specifically, we focus on whether adolescent friendship networks directly connect adolescents to the parenting practices of their friends' parents. Because this path does not require parents to know each other, the influence from friends' parents on adolescent behavior is no longer a result of the child's parents' social capital. Instead, we propose that friends' parents influence adolescents as additional sources of socialization and social control.

Recent work has provided empirical support for the idea that friendships connect people to new social influences beyond the friends themselves. Payne and Cornwell (2007), for example, found that the friends of a youth's friends influence levels of the youth's delinquency beyond the effect of close friends themselves. In another study, Kreager and Haynie (2011) found evidence that the friendship groups of romantic partners influence adolescents' alcohol use. That is, romantic partners appeared to connect individuals to new peer groups, and the resulting exposure promoted the diffusion of drinking attitudes, behaviors, and opportunities. These studies have demonstrated that friendships can link adolescents to influence from peers who are more distant, and we will investigate whether friendships can also serve as a bridge to influence from adults outside the family.

Peers, parents, and deviance

We build on Cleveland and colleagues' (2012) conception of influence from friends' parents by distinguishing four potential causal paths that would create an association between parenting practices reported by friends and adolescents' own deviant behavior. The first is through direct exposure to the friends' parents, which may grow during adolescence due to the increase in time with friends (Larson et al. 1996). When spending time with friends, adolescents may both observe interactions between the parents and the friends and interact with the parents themselves. Direct contact with friends' parents who are effective in their parental role may provide socialization toward prosocial behavior, especially if these experiences occur frequently. But this socialization could also come in the form of negative parenting behaviors. Influence from exposure to friends' parents would likely stem from

observing and modeling parent and child interactions in that household. Patterson's coercion theory (Patterson 1982; Patterson et al. 1975) points to parents' disciplinary practices that appear especially relevant in this regard. Coercion theory describes a process in which parents attempt to discipline their children for inappropriate behavior and children respond with noncompliant, aversive behavior. If parents cease the attempt to discipline in order to avoid the aversive behavior, they inadvertently reinforce the coercive child behavior. Indeed, past research has provided evidence of a negative association between consistent discipline and delinquency (Sampson and Laub 1994; Wells and Rankin 1988). Adolescents who observe the cycle of coercive interactions in their friends' homes may mimic that behavior, which would counter effective parenting in their own homes. In this fashion, friendship connections might spread the negative effects of inconsistent discipline in one family to adolescents in other families. In statistical terms, this process would create a direct effect of friends' reports about parental discipline on respondents' deviant behavior.

A second way that adults may influence the deviance of their children's friends is through shaping friends' activities as a byproduct of the ways that they guide or restrict their own children's activities. Osgood and colleagues (1996) argued that unstructured socializing with peers, in the absence of adults, is conducive to delinquency and drug use, and this position is consistent with evidence from many studies (e.g., Agnew and Peterson 1989; Vazsonyi et al. 2002). The amount of time that adolescents spend with peers, and the settings in which they do so, will be subject to the restrictions exercised by both their own parents and their friends' parents. In other words, both sets of parents will have opportunities to exert social control. If an adolescent's parents closely supervise his or her activities, the parents will also be supervising the activities of any friends who want to spend time with that adolescent, making it more difficult for either to engage in deviant behavior. Parents who are less watchful and restrictive, on the other hand, may enable their child's visiting friends to encounter new opportunities for deviance, such as leaving adolescents unattended for long periods where alcohol is kept. In this vein, parental knowledge or monitoring[1] may be an indicator of whether parents are watchful or whether their children are unsupervised. Thus, this process would be reflected in a direct effect of friends' reports of parental knowledge on respondents' deviant behavior. Not only has an impressive body of research linked measures of parental knowledge to reduced levels of deviance (e.g., Cernkovich and Giordano 1987; Larzelere and Patterson 1990; Stattin and Kerr 2000), but empirical research has also suggested that parental knowledge has effects beyond its implications for one's own child. In one study, for example, Osgood and Anderson (2004) reported a contextual effect in which the average level of parental knowledge reported by adolescents attending a school was associated, above and beyond the effect of individuals' own parents, with the time they spent in unstructured socializing.

Third, parents' influence on the deviant behavior of their own children may indirectly influence their children's friends by way of mediation through peer influence (Kandel 1996),

[1]Stattin and Kerr (2000; Kerr and Stattin 2000) argue that although this literature frequently refers to these parenting practices as "monitoring," the label "parental knowledge" is a more accurate description of the construct captured by standard measures. Though "monitoring" had been the standard term in earlier writings, we will follow the more recent convention of using the term "knowledge."

which is among the most robust predictors of delinquency and drug use (Hawkins, Catalano and Miller 1992; Warr 2002). In this scenario, adolescents do not need to have direct contact with their friends' parents to be influenced by this set of adults. Instead, parents' socialization of and social control over their own children is consequential for the community because their influence on their own offspring spreads to other adolescents as well. In other words, adolescents exposed to effective parenting in their own homes are less likely to engage in deviant behaviors. Subsequently, friends of these adolescents may engage in less deviance as well due to associating with these more prosocial peers. Taking into account this indirect linkage is especially important for clarifying the contribution from the previous two processes that connect adolescents more directly to the parenting practices of their friends.

A final means by which adolescents' deviant behavior might become associated with the parenting reported by their friends is the friendship selection process, especially the tendency to select friends who report receiving similar parenting. Scholars studying the reproduction of social class have stressed the need for attention to parents' contributions to their children's friendship choices. Lareau (2003) argued that middle-class parents play an especially active role in shaping their children's social environment, including guiding their children into friendships with peers whose parents share similar parenting styles. This process is another example of the principle of homophily—the tendency to choose friends similar to oneself—which holds across numerous characteristics and is an integral feature of social networks (McPherson, Smith-Lovin and Cook 2001). Previous research on peers and delinquency also indicates that parents play an active role in friendship choices, with adolescents who receive more effective parenting being encouraged to become friends with prosocial peers or to avoid delinquent peers. Both Knoester and colleagues (2006) and Warr (2005), for example, found an association between the parenting received by adolescents and the delinquency of their peers. If homophily in regards to parenting does indeed take place (via selection for friend characteristics that are associated with certain types of parenting), its effects might easily be mistaken for the other mechanisms that could link adolescents' behavior to their friends' reports about their parents. Thus, obtaining accurate estimates of these influence processes requires controlling for any tendency to select friends who report similar parenting, a potential source of spuriousness. Incorporating this friendship selection process in our analyses also is important for obtaining a more complete picture of the nexus of processes linking adolescents, friends, and parents.

The current study

The current study employs longitudinal social network analysis to examine whether friendships in adolescence connect youth to a broader network of adult social control. A rich tradition of family research has established the importance of effective parenting in promoting prosocial behavior among adolescents. Theories of community influence, on the other hand, recognize the role that adults outside of the home play in this same process. Our study focuses on the contribution of one particular set of adults who may be especially important to this process. Specifically, we investigate whether parents of friends influence alcohol use beyond the influence of respondents' own parents. To test our hypotheses, we consider two aspects of parenting—parental knowledge and discipline—especially relevant

to deviant behavior. Evidence that parental discipline extends to children's friends would suggest that adolescents are influenced through direct exposure to their friends' parents. On the other hand, if parental knowledge affects children's friends, this could suggest that parental control over and awareness about one's own children's activities can constrain the behavior of other adolescents as well. Next, we assess the contribution of peer influence to the association of adolescents' deviant behavior with the parenting reported by their friends in order to distinguish the direct influence of parenting reported by friends versus mediation by influence from the friends' behavior. Finally, we consider the connection between the parenting that adolescents receive and their choice of friends. Given the general tendency of adolescents to select friends who are similar to themselves, do adolescents select friends whose parenting is similar to their own?

The use of a social-network approach to study the influence of friends' parents offers several advantages over prior strategies. First, it enables a more proximal level of analysis of social structural influence. We conceptualize parental knowledge and discipline as behaviors that connect adults not only to their own children, but also to other people's children through the adolescent friendship network. Previous studies have investigated social control and collective efficacy as neighborhood-level constructs (Sampson 1997; Sampson, Raudenbush and Earls 1997) and parental knowledge as a school-level measure (Osgood and Anderson 2004). Network data allow us to examine friendship connections, which fill the gap between the individual and larger social units. Second, prior research has found that indirect (perceptional) measures of peer behavior likely overestimate similarity between peers due to respondents projecting their own behavior onto their peers or assuming a greater degree of similarity among peer groups than actually exists (Aseltine 1995; Haynie and Osgood 2005; Jussim and Osgood 1989; Kandel 1996). The use of measures obtained from network data reduces this bias in measurement, allowing us to estimate the effect of peer and parental influence more accurately. Third, network data provide a broader range of measures to explore. Traditional surveys may ask students about their friends' deviant behavior but not about other characteristics of these friends. With network data, all items available for respondents are available for their friends as well.

A recent study by Cleveland and colleagues (2012) tested whether adolescents were influenced by the mean of parenting reported by groups of friends, and their results support the hypothesis that parenting measures predict reduced drug use. We seek to advance this line of research in several respects. First, we have offered a more comprehensive conceptualization of potential sources of relationships between adolescents' deviance and their friends' reports about parents. Second, we apply a more complete definition of the friendship network in terms of all friendship dyads, in place of Cleveland and colleagues focus on discrete and mutually exclusive friendship groups. Those authors first used a variant of Moody's CROWDS algorithm (Moody 2001) to identify groups in the friendship network and then estimated hierarchical logistic regression models to examine parental influence. Our dyadic approach obviates the need to aggregate measures about friends to the group level, and we thereby retain the full variability across friends. Third, the use of social network analysis allows us to model the structural, selection, and influence processes that underlie friendship networks. Recall that homophily has been documented for a wide variety of personal characteristics and behaviors (McPherson, Smith-Lovin and Cook 2001), and

previous research suggests that parenting can influence adolescents' choices of friends (Knoester, Haynie and Stephens 2006; Warr 2005). Our approach allows us to estimate how friends' attributes influence respondents' deviance, while reducing the potential of mistakenly attributing similarity among friends to influence instead of homophily or structural processes, such as the tendency to reciprocate friendships.

Methods

Sample

Our sample consists of students from 27 school districts in rural and semi-rural communities located in Iowa and Pennsylvania. We analyze data collected as part of the PROSPER prevention trial,[2] the evaluation of a system for delivering programs designed to reduce risky adolescent behaviors and promote healthy lifestyle choices (Spoth et al. 2007; Spoth et al. 2011). The students in these districts were predominantly White (61% – 96%) and English-speaking, and at least 15% of the families in each district were eligible for free or reduced-cost school lunches. Data were collected from two cohorts of students beginning in the 2002–2003 school year for the first cohort and the following school year for the second cohort. Data collection first occurred in the fall when a cohort was in the 6th grade. Subsequent data collection occurred every spring through 9th grade, resulting in five waves of data for each cohort. PROSPER featured open enrollment, allowing new students to be added to the sample at any wave.

Our social network data derive from questionnaire items asking students to name friends in their grade. Students listed names of up to two best friends and up to five "other close friends." Aided by a computer program that suggested plausible matches based on phonetic and spelling similarity, two coders sought matches between the 263,622 names generated and school rosters. The two coders agreed for 98% of the names, and they succeeded in matching 83.0% of them. Only 1.9% of names could not be matched due to multiple plausible matches, .4% were inappropriate choices (e.g., celebrities), and the remaining 14.7% did not appear to be students in that grade and school.

The current study analyzes data from an average of 8,600 students at each wave and more than 12,000 students overall, with participation rates of eligible students ranging from 86% to 90% across the five waves. The approach we used to model our data, SIENA (described below), permits item level missing data, treating missingness as non-informative. Rates of missing data were below 3% for all variables. Our analyses include all respondents who completed questionnaires at least once, and respondents appeared in the networks for all waves they were enrolled in the district.

Measures

Our outcome measure is past-month alcohol use, assessed by responses to the question, "During the past month, how many times have you had beer, wine, wine coolers, or other

[2]An additional community was included in the PROSPER trial, but friendship data from this community were not collected, precluding social network analysis.

liquor?" The original five response categories were recoded to "0" (none), "1" (once), and "2"(two times or more) because initial rates of use were too low to support finer distinctions.

To test whether adolescents' friendship networks connect them to influence from a broader group of adults, we examine students' reports of two aspects of parenting: parental knowledge and parental discipline. At each wave of data collection, students responded to five questions concerning parental knowledge and five questions concerning consistent versus inconsistent and harsh discipline. For example, the parental knowledge measure (α = 0.82) consists of items such as, "during the day my parents know where I am," "my parents know who I'm with when I am away from home," and "my parents know when I get in trouble at school or away from home." Items in the discipline measure (α = 0.78) include "when my parents ask me to do something and I don't do it right away, they give up," "my parents discipline me for something some times, and then other times don't discipline me for same thing," and "when I do something wrong, my parents lose their temper and yell at me." The full set of questions defining the parental knowledge and discipline measures can be found in the supplementary materials. The parental knowledge and discipline measures are each means across items, which had a response scale of "1" to "5." Higher scores correspond to greater parental knowledge and to discipline that is more consistent and less harsh.

Finally, demographic variables and other potential sources of influence serve as control variables. Dummy variables indicate gender ("1" = male), race ("1" = White), and whether the respondent resided with two biological parents ("1" = both parents). The measure of school adjustment and bonding (α = 0.81) is the mean of eight items, which students rated on a scale of 1 ("Never true") to 5 ("Always true"). These items asked whether students liked school, got along with their teachers, and felt like they belonged at school. Finally, analyses include a measure of risk and sensation seeking (α = 0.75), operationalized as the mean of responses to three questions (e.g., how often the respondent does something that feels good regardless of the consequences). Table 1 provides means, standard deviations, and ranges of our measures.

Plan of Analysis

To address our research questions, we analyze our longitudinal network data through a stochastic actor-oriented model (SAOM) using Simulation Investigation for Empirical Network Analysis software (SIENA), an approach developed by Snijders and colleagues (Snijders 2001, 2005; Snijders, Steglich and Schweinberger 2007). This approach is an important breakthrough in dynamic modeling of longitudinal network data because it incorporates the complex dependency inherent in network data and also addresses the interlocking and reciprocal nature of influence and selection processes. SIENA yields parameter estimates for models of simultaneous change in network structure and behaviors from social network panel data. More specifically, SIENA provides a framework for specifying processes of interest as stochastic actor-oriented models and estimating them with Markov chain Monte Carlo methods and Method of Moments. The SIENA software achieves this through simulations that implement the actor-oriented model as a series of micro steps over time. Each micro step is either an opportunity for change in one of an

actor's ties to other actors (i.e., who a given student chooses as friends) or an opportunity for change in an actor's behavior (i.e., an increase or decrease in the actor's drinking). Parameter estimates optimize the correspondence between the simulations and target values characterizing the observed pattern of change. For more information and a nontechnical introduction to SAOM analysis of social networks, see Steglich, Snijders and West (2006).

The parameters included in our models can be grouped into three categories: structural terms, selection terms, and behavioral terms. The structural parameters correspond to processes of friendship choice based on patterns of dependence among different actors' positions in the network and not the characteristics of the individuals. Though the present study does not concern these structural processes, allowing for them will reduce potential biases in estimates of the processes of interest. Our models include structural parameters for the overall rate of friendship choice (*outdegree, density* in the terminology of SIENA), tendencies to reciprocate friendships from others (*reciprocity*), choosing the friends of other people the actor named as friends (*transitive triplets*), becoming friends with people who choose the same people the actor did (balance[3]), maintaining hierarchical friendship triads (*3-cycles*), and continuity in popularity (*indegree – popularity sqrt*).

Next, our model allows for differential selection of friends based on *sex*, *race*, *drinking*, *parental knowledge*, and *parental discipline*. The model includes parameters for the association of each attribute with being named as a friend more or less frequently by others (*alter term*), naming more or fewer friends (*ego term*), and choosing friends similar to oneself (*same/similarity term*). For example, students who drink more frequently may be more likely to nominate friends who also drink more, or students might tend to select friends of the same sex. Additionally, multiple elementary schools fed into the same high school in some districts, and ego terms for these changes take into account any effect on naming more or fewer friends in the year immediately following.

Finally, our models contain several elements concerning behavioral change in alcohol use. *Linear* and *quadratic shape* terms are the SIENA model's means for accounting for the general tendencies of behavioral changes in drinking over time. These terms allow for stability, regression toward the mean, and overall change, such as whether students who reported past-month alcohol use in early waves are more likely to report increased drinking at later waves. Our models also control for the relationship of change in alcohol use to individual level attributes, including *gender*, *race*, *living with two biological parents*, *school bonds*, and *sensation seeking*.

Controlling for the *parental knowledge* and *discipline* respondents reported for their own parents is essential to establishing that these attributes of friends' parents are consequential rather than coincidental. Including these variables also is relevant to the concept of intergenerational closure, in which parents' ability to more effectively parent their *own* children is enhanced after becoming friends with the parents of their children's friends. That is, while our measures of parental knowledge and parental discipline do not address the ties

[3]Although preliminary analyses indicated a definite tendency toward balance, including this term interfered with model convergence in several networks. Because estimates for balance varied little across networks, we fixed the estimate to its mean from preliminary results.

between respondents' parents and their friends' parents, we are able to effectively control for the paths through which this effect *would* operate. Thus, these model parameters control for intergenerational closure to the extent that it operates through our two parenting measures.

The terms in which we are most interested, *average friends' parental knowledge* and *average friends' parental discipline*, characterize how the parenting reported by an individual's friends affect the individual's own drinking. Subsequent models add a term for *average similarity of friends' drinking* to capture direct influence from friends for drinking. This term serves two purposes: In addition to representing the direct influence of friends, its impact on the estimates of influence from measures concerning friends' parents also indicates the extent to which those influences are direct versus mediated by the friends' behavior.

We obtained the results presented in this manuscript through a two-stage process. First, we estimated separate SIENA models for each of the 48 district-cohort combinations in our sample, yielding logistic regression coefficients and standard errors for each of the 48 networks.[4] Second, in order to draw inferences based on the entire sample, we used three-level hierarchical linear models (HLM) to obtain precision weighted means of the SIENA estimates and to estimate the reliable variation of the parameters across networks.[5] The grade cohorts within school districts are the level-two units of analysis, and the districts are the level-three units of analysis. Because the data consist of statistics calculated from samples, a variance-known model takes into account the differential precision of the estimates (squared standard errors) at level one, using the same statistical model as for a meta-analysis of results across studies (Raudenbush and Bryk 2002). Thus, HLM is simply a means of obtaining precision weighted average results from multiple SIENA analyses (which are logistic). Finally, this process also allows us to estimate the variability of each process, and we present a between-network standard deviation of each parameter estimate.[6]

Results

We first focus on the parenting dimension of parental knowledge. Table 2 presents parameter estimates for all structural, selection, and behavioral terms in our models examining the relationships among friendships, parental knowledge, and past-month alcohol use.[7] The first set of parameters refers to network structural effects and changes in

[4]One district-cohort network is omitted due to a missing wave of data and two because a school closing after a fire created a chaotic pattern of school transitions that precluded SAOM analysis. Three additional networks are omitted due to unsatisfactory convergence. Convergence difficulties are common for SAOM analyses, typically resulting from insufficient variation over time to identify all parameters empirically (Knecht et al. 2010). All reported models were estimated with five phase-2 sub-phases and 4,000 iterations during phase 3, and all freely estimated parameters across all networks have convergence *t* values of less than +/− .10.

[5]Schools in half of the districts were assigned at random to receive school-based prevention programming. Supplementary analyses revealed that all estimates for *parental knowledge similarity*, *parental discipline similarity*, *average similarity of friends' drinking*, and *average friends' parental knowledge* were consistent across control and treatment communities. In one set of analyses that contained parameters for neither *average similarity of friends' drinking* nor any parameters for *parental knowledge*, the magnitude of the effect of *average friends' parental discipline* on drinking was weaker in treatment communities, but this difference was not found in models that incorporated the other parameters.

[6]Obtained by taking the square root of the sum of district-cohort (level 2) and district (level 3) variance estimates from the HLM models

[7]Estimates for shape and rate parameters can be found in the supplementary materials. Friendship and behavioral rate parameters reflect the frequency of changes in network ties and individual behavior.

friendship selection that occur due to school mergers and transitions. Each of these network structural effects (e.g., outdegree, reciprocity) is statistically significant, suggesting that models of peer influence that fail to account for these endogenous network processes may be misspecified. Recall that three types of network selection parameters are included in the models: alter terms, reflecting the attractiveness as a friend; ego terms, reflecting whether a respondent names more or fewer friends than other respondents; and same/similarity terms, reflecting a preference for others similar to oneself. In the current study, respondents who report more past-month alcohol use are more likely to be nominated as a friend by their peers. Additionally, non-White respondents are more likely to receive friendship nominations. Respondents who report higher levels of parental knowledge also tend to make more friendship nominations. Females nominate more friends than males, and non-White respondents nominate more friends relative to their White peers. Finally, respondents are more likely to nominate friends who report similar levels of past-month drinking, and are more likely to nominate friends of the same sex and race.

Our models include two types of behavioral parameters. First, individual-level control variables are included to account for other processes that might influence alcohol use. Not surprisingly, students' own reports of their parents' knowledge are associated with reduced drinking, as is whether respondents live with both of their biological parents ($p < 0.10$, though this effect achieves statistical significance at $p < .05$ in subsequent models). Female respondents are more likely to report alcohol use than are males, and increases in school bonding coincide with reduced past-month alcohol use. Increases in sensation seeking are linked with more drinking, while White (versus non-White) race is not associated with alcohol use.

Turning to our primary research questions, Model 1 indicates a significant association of friends' parental knowledge with reduced alcohol use ($b = -0.41$, $SE = 0.05$, $p < 0.001$). Thus, respondents are less likely drink if their friends report that their parents are more knowledgeable about their activities and associates. This logistic coefficient indicates that a one unit increase in friends' mean parental knowledge corresponds to 34% lower odds of an increase in alcohol use, or 81% lower odds for the maximum versus minimum level of parental knowledge. We also note a strong preference for selecting friends who report similar parental knowledge ($b = 0.20$, $SE = 0.03$, $p < 0.001$).

To determine whether that association is a byproduct of a more direct influence from the friends' drinking (which is influenced by their parents), Model 2 adds a term for friends' past-month drinking. As expected, this parameter estimate is positive and statistically significant ($b = 1.19$, $SE = 0.10$, $p < 0.001$), indicating that respondents' tend to change their drinking to become more similar to their friends' drinking. This addition to the model reduces the magnitude of the estimate for friends' parental knowledge by about half, but it remains statistically significant ($b = -0.22$, $SE = 0.06$, $p < 0.01$). These results suggest that while much of the association between friends' parental knowledge and alcohol use is mediated by the drinking of the friends themselves, a direct effect does exist as well. Estimates for the structural and selection parameters are virtually unchanged by the addition of average similarity term for friends' drinking.

The next analyses, presented in Table 3, examine the same set of relationships for parental discipline rather than parental knowledge. Because the estimates remain essentially identical for the structural, selection, and behavioral parameters that do not involve parenting, we omit these terms from subsequent tables. In Model 1, friends' parental discipline is associated with decreased alcohol use ($b = -0.16$, $SE = 0.04$, $p < 0.001$). In other words, respondents who select friends who report more consistent and less harsh parental discipline are less likely to report past-month drinking, net of all other model parameters. Odds of an increase in use decline by 15% per unit of friends mean drinking. Receiving such discipline from one's own parents also results in significantly less alcohol use. Finally, respondents tend to select friends who report similar parental disciple to their own ($b = 0.15$, $SE = 0.02$, $p < 0.001$). Parental discipline has no effect on a respondent's likelihood of being selected as a friend or nominating more peers as friends.

Model 2 adds the influence of friends' drinking in order to determine the degree to which it mediates the effect of friends' parental discipline. Doing so reduces the effect of friends' parental discipline by about half of its original magnitude, but it remains statistically significant ($b = -0.09$, $SE = 0.04$, $p < 0.05$). Thus, a substantial share of the influence of friends' parental discipline on respondents' alcohol use appears due to an indirect effect via the parents influence on their own children's behavior. Even so, a meaningful direct effect of the friends' parents on the respondents' alcohol use remains.

Table 4 presents the results of comparable models that jointly consider both parental knowledge and parental discipline. The role of both parenting dimensions in selecting friends remains comparable to the results observed in the models that treat them separately. That is, not only do respondents who report higher levels of parental knowledge also tend to make more friendship nominations, but respondents also tend to select friends who report parental knowledge and discipline similar to their own. In Model 1, the effect on alcohol use of friends' parental knowledge ($b = -0.40$, $SE = 0.06$, $p < 0.001$) remains statistically significant and of the same magnitude as before adding parental discipline. In contrast, controlling for friends' parental knowledge reduces the effect for friends' parental discipline by half and renders it only marginally significant ($b = -0.09$, $SE = 0.04$, $p < 0.10$). Thus, much of the effect of friends' parental discipline on drinking appears to stem from its association with friends' parental knowledge, which is more closely linked to drinking.

Controlling for friends' past-month drinking in Model 2 has the same consequence as in the separate analyses of the parenting dimensions. The estimate of friends' parental knowledge ($b = -0.23$, $SE = 0.06$, $p < 0.01$) declines by about half but remains statistically significant. This estimate corresponds to 21% a reduction in odds of increased alcohol use per unit of friends' parental knowledge. Respondents whose friends report higher levels of parental knowledge therefore report less alcohol use, an effect that can be partially, but not completely, attributed to the behavior of those friends. The effect of friends' parental discipline ($b = -0.05$, $SE = 0.04$, $p > 0.10$), on the other hand, is no longer significant once friends' drinking is included as a model parameter. Thus, the association of higher levels of friends' parental discipline with lower levels of alcohol use by the respondent in previous models appears to stem from a combination of mediation through friends' behavior and correlation with other parenting practices, specifically parental knowledge.

DISCUSSION

During adolescence, children decrease the amount of time they spend with their families while also increasing the amount of time they spend with friends. As a result, adults outside of the home may play a growing role in the collective effort to exert social control and reduce adolescent deviance. Our analyses yield support for Cleveland and colleagues' (2012) suggestion that friendships link adolescents to a broader web of adult influence from friends' parents. Our work goes beyond Cleveland and colleagues' by differentiating and assessing four potential sources of an association between adolescents' deviance and their friends' reports about their parents and by assessing these processes through a full network analysis of dyadic influence.

As noted earlier, a rich body of prior research suggests that the community at large may play an important role in reducing adolescent deviance (Sampson 1987, 1997; Sampson and Groves 1989; Sampson et al. 1997; Shaw and McKay 1942). The current study's findings indicate that friendships create one important avenue for this influence by connecting adolescents to a broader network of parenting. Notably, Cleveland and colleagues' (2012) conception of this process is distinct from Coleman's (1988) idea of intergenerational closure, which operates through communication between the friends' parents and the adolescents' own parents. We focus on a path that does not rely on enhancing the parents' social capital for influence over their own children. Instead, it concerns an alternative avenue of influence over their behavior through socialization and social control from other adults. Consistent with Cleveland and colleagues' view, we find associations between alcohol use and friends' reports about their parents, even after controlling for the effects of adolescents' own parents. This line of research is particularly important given recent claims that peers have much greater influence than parents in the lives of adolescents (e.g., Harris 2009). Our results indicate that parents and peers, rather than being "competing" factors, instead work together, with friends linking adolescents to additional parental influence and parents also influencing adolescents' friendship choices.

We outlined four ways by which adolescents' deviance could become associated with the parenting reported by their friends. First, direct exposure to the friends' parents might influence adolescents' behavior, and we hypothesized that parental discipline would be one aspect of parenting especially likely for this pathway. Indeed, friends' reports of parental discipline are associated with change in adolescent drinking, and a statistically significant relationship remains after controlling for the friends' drinking. This association was attenuated and became non-significant, however, after accounting for the influence of friends' parental knowledge. This result suggests that the influence of friends' parents may not stem from direct exposure to the parents, or at least not from exposure to their disciplinary practices.

A second way that adults may influence the deviance of their children's friends is through shaping the friends' activities as a consequence of the control they exercise over where their own child goes and what he or she does. We argued that friends' reports of parental knowledge about their activities and associates would capture this form of influence. The effect of friends' parental knowledge, unlike the effect of friends' parental discipline,

remains statistically significant even when controlling for friends' drinking and the parenting behaviors of both the respondents and their friends. The differing results for parental knowledge and discipline that emerge from our analyses speak to *how* the parenting that friends receive matters. Specifically, our findings point to parents as the source of a contextual effect on deviant behavior, by way of their altering the levels of supervision and structure for the activities of the larger set of friends (Osgood and Anderson 2004), consistent with a routine activity perspective (Haynie and Osgood 2005; Osgood et al. 1996; Warr 1993b).

Third, parents' influence on the deviant behavior of their own children may indirectly affect their children's friends by way of peer influence. Adolescents who are the recipients of more effective parenting are themselves less likely to engage in deviant behavior, and their own behavior then influences their friends' behavior. Indeed, we find clear evidence that this path contributes to the association between adolescents' alcohol use and the parenting reported by their friend. Specifically, peer influence for drinking mediated about half of the total effect of parenting received by friends. Thus, this finding not only reinforces the view that peer behavior is an important source of social influence, but also illustrates another avenue through which adolescents may be influenced by the parents of their friends.

Finally, we noted that selection processes might create a correlation of adolescent behavior with the parenting reported by their friends. We found evidence of a tendency for adolescents to nominate friends who reported similar levels of parental knowledge and discipline as themselves. These results are in line with two streams of previous research indicating that parents may have a role in shaping their children's friendship networks. First, in research on parents, peers, and delinquency, Knoester and colleagues (2006) observed that students who reported higher levels of parental knowledge were likely to have more prosocial friendship networks, and Warr (2005) found that adolescents who reported higher levels of parental knowledge also reported having friends who engaged in less delinquency. Second, research on parenting and social class indicates that middle class parents may play an active role in shaping the social environment of their children by guiding them to choose friends whose parents hold similar values (Lareau 2003). Notably, our results reveal that controlling for the tendency to select friends who report experiencing similar parenting did not fully account for the influence of friends' parenting on respondents' alcohol use. In light of these earlier studies, our findings suggest a complex nexus in which parents influence their own children's behavior and friendship choices, both of which serve to spread their influence to other adolescents as well.

Although the substantive focus of our study is on the effects of parenting on alcohol use and friendship networks, our models provide several other findings worth noting. Respondents are more likely to choose frequent drinkers as friends, and students also tend to nominate friends who report alcohol use similar to their own. Not surprisingly, we also found preferences for similarity in friends for race and (especially) sex, and friends' drinking was strongly associated with changes in respondent alcohol use even with the inclusion of network dynamics and selection parameters in the model. In sum, these results point to the complexities that underlie the nature of the relationship between peers and deviant behaviors.

Limitations and Future Directions

Two important topics relevant to our work must await future research. First, despite the richness of our data and the complexity of our analytic approach, we were unable to study adolescents' potential influence on their parents' behavior toward them, which is a central theme of current research on parental knowledge and monitoring (Stattin and Kerr 2000). Incorporating that influence would add valuable insights about the set of processes we have studied. Unfortunately, adding this influence would require treating parenting as an outcome variable, which results in a statistical model more complex than we were able to implement. In addition, we lacked parents' reports about their parenting, which would be especially valuable for this purpose.

Another important direction for future research would be to investigate the role of social class in the processes we have studied. As we noted, research on the reproduction of social class portrays middle class parents as attempting to shape the friendship formation process toward maintaining a middle class social environment for their children (Lareau 2003). Our findings are supportive in showing that adolescents tend to select friends who report receiving similar parenting. Differences in social class may thus be a source of the variation in parenting our respondents report (Lareau 2003), which in turn may contribute to differences in drug and alcohol use by class. This process becomes increasingly important given recent evidence of the growing disparities in the parental resources available to adolescents (McLanahan 2004; Putnam et al. 2012). McLanahan (2004), for example, argued that while children born to educated women have increased access to parental resources, there has been a decrease in the resources available to the children of less educated women. Putnam and colleagues (2012) similarly reported on a growing "class gap" in the opportunities provided to children by their parents, in that those from the upper and middle class are seeing increases in these opportunities while those from the lower class are experiencing constant or even decreasing access of these same opportunities. Differences in parenting based on class are also relevant in light of the rise of single-parent households, which are in turn linked to reduced resources for children (McLanahan and Percheski 2008).

We had limited potential to investigate these issues of social class and parenting in this study. Our only measure of social class was adolescents' reports of whether they were eligible for free or reduced-cost school lunches. This skewed, dichotomous measure reflects only income and family size and lacks information on the key features of parental education and occupational prestige that are central to distinguishing families likely to hold middle class values. Although we were not able to investigate the role of social class directly, social class may contribute to how parents raise their children.[8] Future studies should continue to explore how class differences affect parenting styles and whether these differences are in turn linked to variation in adolescent problem behaviors.

[8]A reviewer raised the question of whether the connection of social class with parenting might account for our results. The correlations between the measure of free lunch status and the parenting measures indicate that the parenting measures are only modestly associated with social class and they are definitely not proxies for class: The correlation between the free lunch measure and the parental knowledge measure is −0.04, and the correlation between the free lunch measure and the parental discipline measure is −0.12. Moreover, social class of respondents or their friends could not produce the results for the parenting measures because it is not associated with alcohol use in these data (or for U.S. adolescents in general). The correlation between the free lunch measure and alcohol use is −0.02 and was not statistically significant in preliminary SIENA analyses.

Several important methodological strengths bolster our research. Most past research on peer influence has relied on indirect measures of peer behavior from respondents' reports about their friends, and these measures overestimate the amount of similarity among peers (Aseltine 1995; Haynie and Osgood 2005; Jussim and Osgood 1989; Kandel 1996). Instead, we employ direct measures of peer behavior from friends own reports. We also take advantage of recent developments in dynamic, longitudinal social network analysis in order to take into account the simultaneous processes stemming from network structure, selection preferences, and behavioral influence. Additionally, our results derive from a sizable set of independent networks, thus reducing the possibility that results are driven by idiosyncrasies of specific networks. With these advantages in mind, we note several limitations of the current study.

First, our sample consists of students from small towns with predominantly White populations and a substantial proportion of low-income families, and the processes investigated in our study may operate differently in other settings. Even so, there are compensating advantages. The homogeneity among respondents removes potential sources of spuriousness, and the limited school choices in these small communities mean that school-grade cohorts provide considerably better coverage of the likely pool of friends than in more populous urban settings. Further, friendship choices were limited to the same grade and school. Though such restrictions are unavoidable in longitudinal social network analysis, they have the potential to underestimate or distort peer influence processes.

Next, our measures of parenting behaviors are based on the students' reports, as is our outcome measure of alcohol use. Though this approach is consistent with much of the prior research, independent measures, such as parents' perceptions or observations of actual behavior, would be preferable.

We also note that our results do not provide proof of causation, as is true of any regression based analysis of observational data (Shalizi and Thomas 2011). We have referred to our findings as "effects" because they stem from a dynamic, longitudinal analytic approach that simulates a set of interlocking causal processes that operate concurrently. Further, our models have the advantage of incorporating many relevant forms of selection and competing influences, thereby addressing an unusually large set of competing explanations. At the same time, SIENA makes numerous assumptions about the data when estimating these models, and there is little basis for judging their accuracy or the consequences of violating them. For instance, the model assumes that the sequencing of changes in friendships and behaviors is random across actors, that the past has no influence on the future other than through the present, and that the specific form of its complex logistic equations accurately expresses all of the interdependencies among the actors.

Conclusion

Building on earlier work by Cleveland and colleagues (2012), our findings demonstrate that adolescent friendship networks connect youth to a broader network of adults and provide evidence of how adults outside of the family are capable of contributing to the social control of adolescents. These results also add to a growing body of research that has shown that

friends connect individuals to broader social networks (Cleveland et al. 2012; Kreager and Haynie 2011; Payne and Cornwell 2007). Although much of this work has focused on adolescent deviance, it seems clear that there is considerable potential for social networks, including the channels that extend beyond friends themselves, to influence individuals in other domains as well. Moreover, from a policy standpoint our results suggest that prevention and intervention programs intended to reduce adolescent problem behaviors should consider addressing the dynamics within the friendship network, going beyond the standard focus on skills for refusing suggestions of drug use or delinquent activity. Our results also suggest that programs might have a surprisingly broad range of benefits if they succeed in enhancing parents' effectiveness (e.g., Spoth et al. 1998).

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Descriptive Statistics

Variable	*Mean*	*Std. Dev.*	*Min.*	*Max.*
Drinking (past-month)	0.307	0.644	0	2
Parental knowledge	4.310	0.749	1	5
Parental discipline	3.572	0.965	1	5
Sex	0.487	—	0	1
Race	0.814	—	0	1
Both Biological Parents	0.609	—	0	1
School Bonds	3.780	0.767	1	5
Sensation Seeking	2.141	1.003	1	5

All values are means across 48 networks, with a total N of 43,299 person/waves

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Table 2

Selected SIENA Parameter Estimates: Parental Knowledge and Drinking[a]

	Model 1				Model 2			
	b	***SE***	***t***	***SD***	***b***	***SE***	***t***	***SD***
Structural parameters								
Outdegree (density)	−3.187	0.054	−59.00 ***	0.269	−3.188	0.054	−59.20 ***	0.268
Reciprocity	1.955	0.042	46.08 ***	0.214	1.953	0.043	45.66 ***	0.215
Transitive triplets	0.336	0.014	24.44 ***	0.070	0.335	0.014	24.00 ***	0.071
3-cycles	−0.410	0.016	−25.64 ***	0.073	−0.409	0.016	−25.22 ***	0.075
Balance	0.100	—	—	—	0.100	—	—	—
Indegree - popularity (square root)	0.178	0.010	18.49 ***	0.046	0.179	0.009	18.93 ***	0.045
Merger ego	−0.738	0.106	−6.94 ***	0.305	−0.740	0.106	−6.95 ***	0.305
Transition ego	−0.229	0.043	−5.28 ***	0.202	−0.228	0.044	−5.23 ***	0.204
Selection parameters								
Alter effects: Who is more often named as a friend?								
Parental knowledge	−0.008	0.004	−1.81 †	0.009	−0.008	0.004	−1.85 †	0.008
Drinking	0.086	0.010	8.47 ***	0.023	0.083	0.010	8.71 ***	0.015
Sex	0.015	0.007	1.97 †	0.021	0.016	0.007	2.25 *	0.019
Race	−0.074	0.011	−6.71 ***	0.045	−0.074	0.011	−6.71 ***	0.045
Ego effects: Who names more friends?								
Parental knowledge	0.039	0.007	5.17 ***	0.038	0.039	0.007	5.28 ***	0.038
Drinking	−0.008	0.020	−0.42	0.082	−0.015	0.019	−0.77	0.077
Sex	−0.133	0.018	−7.53 ***	0.083	−0.133	0.018	−7.52 ***	0.085
Race	−0.055	0.015	−3.70 **	0.056	−0.056	0.015	−3.68 **	0.059
Similarity effects: Choosing friends similar to oneself								
Parental knowledge	0.196	0.027	7.40 ***	0.106	0.199	0.027	7.40 ***	0.103
Drinking	0.290	0.022	13.22 ***	0.007	0.281	0.021	13.27 ***	0.007
Sex	0.722	0.024	30.17 ***	0.128	0.723	0.024	30.22 ***	0.128

	Model 1				Model 2			
	b	***SE***	***t***	***SD***	***b***	***SE***	***t***	***SD***
Race	0.178	0.024	7.50 ***	0.115	0.178	0.024	7.52 ***	0.115
Behavioral parameters: Influence on Drinking								
Friends' attributes								
Mean Parental knowledge	−0.410	0.054	−7.62 ***	0.019	−0.221	0.064	−3.45 **	0.015
Drinking mean similarity	—	—	—	—	1.186	0.102	11.69 ***	0.021
Control variables (individual level)								
Parental knowledge	−0.116	0.013	−8.94 ***	0.007	−0.115	0.013	−8.77 ***	0.005
Sex	−0.169	0.019	−8.68 ***	0.029	−0.155	0.016	−9.60 ***	0.003
Race	−0.013	0.026	−0.50	0.053	−0.005	0.026	−0.18	0.048
Both Biological Parents	−0.037	0.018	−2.02 †	0.012	−0.040	0.019	−2.09 *	0.018
School Adjustment & Bonding	−0.183	0.011	−16.03 ***	0.005	−0.181	0.012	−14.98 ***	0.005
Risk & Sensation Seeking	0.141	0.010	13.72 ***	0.027	0.139	0.010	14.19 ***	0.004

*** $p < .001$.

** $p < .01$.

* $p < .05$.

† $p < .10$.

All values are means across 48 networks, with a total N of 43,299 person/waves

[a] Models also include rate and shape parameters (estimates available in the supplementary materials)

Table 3

Selected SIENA Parameter Estimates: Parental Discipline and Drinking[a]

	Model 1				Model 2			
	b	***SE***	***t***	***SD***	***b***	***SE***	***t***	***SD***
Selection parameters								
Alter effects: Who is more often named as a friend?								
Parental discipline	−0.003	0.002	−1.16	0.001	−0.003	0.002	−1.12	0.001
Drinking	0.083	0.010	8.61 ***	0.016	0.081	0.009	9.16 ***	0.006
Ego effects: Who names more friends?								
Parental discipline	0.003	0.005	0.57	0.024	0.003	0.005	0.60	0.024
Drinking	−0.028	0.019	−1.47	0.075	−0.035	0.020	−1.77 †	0.078
Similarity effects: Choosing friends similar to oneself								
Parental discipline	0.147	0.017	8.49 ***	0.042	0.148	0.018	8.41 ***	0.044
Drinking	0.296	0.023	12.79 ***	0.012	0.293	0.019	15.17 ***	0.006
Behavioral parameters: Influence on Drinking								
Friends' attributes								
Mean Parental discipline	−0.164	0.038	−4.34 ***	0.010	−0.089	0.040	−2.23 *	0.010
Drinking mean similarity	—	—	—	—	1.230	0.096	12.83 ***	0.020
Control variables (individual level)								
Parental discipline	−0.032	0.008	−3.83 **	0.002	−0.038	0.009	−4.18 ***	0.002

*** $p < .001$.

** $p < .01$.

* $p < .05$.

† $p < .10$.

All values are means across 48 networks, with a total N of 43,299 person/waves

[a] Models also include rate and shape parameters, structural parameters, and the full set of alter, ego, similarity, and individual-level control parameters

Table 4

Selected SIENA Parameter Estimates: Parental Knowledge, Parental Discipline, and Drinking[a]

	Model 1				Model 2			
	b	***SE***	***t***	***SD***	***b***	***SE***	***t***	***SD***
Selection parameters								
Alter effects: Who is more often named as a friend?								
Parental knowledge	−0.003	0.004	−0.79	0.002	−0.002	0.004	−0.47	0.003
Parental discipline	−0.004	0.002	−1.74 †	0.001	−0.004	0.002	−1.55	0.001
Drinking	0.086	0.010	8.56 ***	0.016	0.083	0.010	8.69 ***	0.007
Ego effects: Who names more friends?								
Parental knowledge	0.043	0.008	5.76 ***	0.037	0.044	0.007	5.85 ***	0.039
Parental discipline	−0.003	0.005	−0.47	0.024	−0.002	0.005	−0.36	0.023
Drinking	−0.009	0.019	−0.47	0.077	−0.011	0.021	−0.53	0.089
Similarity effects: Choosing friends similar to oneself								
Parental knowledge	0.167	0.023	7.12 ***	0.093	0.169	0.025	6.70 ***	0.101
Parental discipline	0.152	0.017	8.79 ***	0.039	0.151	0.017	8.86 ***	0.035
Drinking	0.283	0.022	12.71 ***	0.007	0.276	0.021	13.45 ***	0.006
Behavioral parameters: Influence on Drinking								
Friends' attributes								
Mean Parental knowledge	−0.402	0.062	−6.46 ***	0.038	−0.230	0.065	−3.56 **	0.014
Mean Parental discipline	−0.086	0.042	−2.02 †	0.010	−0.051	0.043	−1.18	0.011
Drinking mean similarity	—	—	—	—	1.162	0.110	10.56 ***	0.023
Control variables (individual level)								
Parental knowledge	−0.117	0.014	−8.44 ***	0.012	−0.122	0.014	−8.93 ***	0.004
Parental discipline	−0.039	0.008	−4.62 ***	0.002	−0.043	0.009	−4.54 ***	0.002

*** $p < .001$.

** $p < .01$.

* $p < .05$.

$^{\dagger}p < .10$.

All values are means across 48 networks, with a total N of 43,299 person/waves

[a] Models also include rate and shape parameters, structural parameters, and the full set of alter, ego, similarity, and individual-level control parameters